To: Seter, David[Seter.David@epa.gov]
From: Jeryl Gardner
Sent: Thur 2/4/2016 1:04:08 AM
Subject: RE: Anaconda Yerington - EPA Notes on OU4 Pending Field Work
removed.txt

Thanks, Dave.

I'm in favor of either approach, whatever works for everyone.

Jeryl

Jeryl R. Gardner, P.E., C.E.M.

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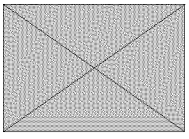

From: Seter, David [mailto:Seter.David@epa.gov]
Sent: Wednesday, February 03, 2016 4:45 PM
To: Jack Oman; John Batchelder; Zimmerman, Chuck; Jeryl Gardner; Rodriguez, Dante; Dirscherl, Christopher
Subject: FW: Anaconda Yerington - EPA Notes on OU4 Pending Field Work

Jack,

I would like to discuss these comments during our next EPA/NDEP/ARC PM call. Or if the team would like to set up a separate call perhaps we can schedule during the PM call.

Thanks,

David A. Seter, P.E.

Remedial Project Manager

USEPA Region 9

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From: Seter, David
Sent: Thursday, January 21, 2016 3:42 PM
To: Jack Oman <Jack.Oman@bp.com>; John Batchelder <jbatchelder@envirosolve.com>; 'Zimmerman, Chuck' <CZimmerman@brwncald.com>
Cc: 'Jeryl Gardner' <JGARDNER@ndep.nv.gov>; Rodriguez, Dante <Rodriguez.Dante@epa.gov>; Dirscherl, Christopher <Dirscherl.Christopher@epa.gov>
Subject: Anaconda Yerington - EPA Notes on OU4 Pending Field Work

Jack and ARC team, Jeryl, and EPA team,

On our most recent ARC/NDEP/EPA project management call, a request was made that EPA clarify any outstanding questions about the next phase of OU4 Evaporation Ponds field work being planned.

I've summarized the questions as follows for the group's consideration. Please let me know if any of the questions are unclear. If the team would like to discuss I would be happy to do that. Thanks.

EPA Summary / OU4 Field Work Status / January 2016

Preliminary data has been provided by ARC (groundwater and geotechnical grab sample data), with soil and hydraulic parameter data to be collected during the next phase of field work. Preliminary data was received in table format (6-29-15). Sample location maps were made available during a field meeting (8-6-15) but EPA did not receive hard copies or electronic copies of these maps (perhaps other meeting attendees did). Data interpretation and description of field procedures utilized will presumably be presented in a future Data Summary report (TBD). There was a brief field inspection by an EPA/NDEP team (5-6-15).

Differences between Work Plan and FSP

With respect to the following two documents:

- Draft Supplemental Characterization Work Plan, Anaconda Evaporation Ponds, Yerington Mine Site (January 31, 2014)

- Technical Memorandum, Phase I Field Sampling and Analysis Plan, Anaconda Evaporation Ponds (July 31, 2014)

Some aspects of the field work discussed in the Work Plan are not included in the FSP Tech Memo. The following table represents EPA's understanding of the differences using as a point of reference what the Work Plan described as Phase I and Phase II activities (setting aside for the time being Work Plan Phase III and Phase IV activities):

	Work Plan (1/31/14)	FSP Tech Memo (7/31/14)
Groundwater grab samples	Phase I	Phase I (referred to in subsequent technical discussions as Phase Ia)
Geotechnical grab samples	Phase I	Phase I (subsequently Phase Ia)
Radiometric survey of northern portion of calcine ditch	Phase I	Not specified
Mineralogic analyses from existing monitor well cores	Phase I	Not specified
Supplemental geotechnical and geochemical data: pond sediments; alluvial soils; groundwater chemistry	Phase II	Phase I (referred to in subsequent technical discussions at Phase Ib but excluding geotechnical data)
Install groundwater monitor wells within the SCA	Phase II	Not specified
Install vadose zone monitoring	Phase II	Phase I (subsequently Phase Ib)

equipment within the SCA

Since these data collection efforts were intended to fill data gaps, EPA would like clarification with respect to the activities included in Phase I/II of the Work Plan but excluded from the FSP Tech Memo: radiometric survey of the northern portion of the calcine ditch; mineralogic analyses from existing monitor well cores; and monitor well installation. There's a statement in the Work Plan that may explain why the FSP Tech Memo doesn't include mineralogic analyses from existing monitor well cores or installation of groundwater monitor wells within the SCA: "*Select Phase 2 activities (e.g., additional mineralogic and geotechnical analyses, and/or the need to install additional groundwater monitor wells) may require an evaluation of Phase 1 results* (Page 81)." It's not clear whether this decision will be made following production of a Data Summary Report for Tech Memo FSP Phase I field work or through some other interim data review and decision process. It's also not clear how or when a decision would be made on the radiometric survey of northern portion of calcine ditch.

Also, EPA notes that whereas the Work Plan (Page 82) envisioned a second phase of geotechnical testing involving the drilling of boreholes using a sonic core rig in pond sediment and alluvial soils, the FSP Tech Memo does not appear to specify this additional work. Clarification would be appreciated.

Status of FSP Tech Memo Field Work

EPA is awaiting a proposal from ARC on how the FSP Tech Memo Phase Ib sample locations within the evaporation ponds will be accessed due to health and safety and technical considerations associated with the wet condition of the evaporation ponds following summer, fall, and winter rainfall.

EPA issued its conditional approval of the FSP Tech Memo on 10/20/14, however ARC didn't reply as to whether they accepted the conditions. EPA would appreciate clarification whether the following comments will be addressed as part of Phase Ib field work:

- Lysimeter installation procedures on page 8 of the plan indicate that a slurry of native backfill will be placed around the porous cup. However, the procedures in SOP-28 provided in Attachment 2 state in Section 5.3.2 that a silica flour/distilled water slurry will be used for this purpose. If a native soil slurry is to be used, it is recommended that the soil be obtained from the interval into which the lysimeter will be installed and screened to

remove large particles. If silica flour is to be used, it is recommended that leachate from the silica flour be analyzed for pH, specific conductance, and site-specific constituents prior to use. At least one instance where the silica flour significantly raised the pH and specific conductance of leachate has been reported in the literature.

- Section 5.2.4 of SOP-29 indicates that the lysimeter samples may be filtered. It is noted that the effective pore size of a ceramic cup lysimeter installed with a silica flour is relatively small and may serve as a filter. Given that contact of the sample with the atmosphere to varying degrees is inherent in this type of investigation, the decision to filter the sample prior to preservation should be carefully considered. Filtration could result in significant losses of some of the constituents (e.g., iron, arsenic, uranium) that were previously dissolved in the pore water. In general, analytical results of samples obtained from a lysimeter should be interpreted with caution. Sorption of some of the constituents of concern, loses due to atmospheric contact and subsequent sample filtration, and other artifacts inherent in this type of sampling have been documented in the literature.
- Since one of the objectives of data collection, in addition to human health risk assessment, is ecological risk assessment, it will be necessary to achieve lower selenium reporting limits for at a minimum a subset of soil/sediment and groundwater data collection points, given that ecological screening levels are lower than detection limits proposed for this phase of field investigation. While EPA is not conditioning approval of this phase of the work on achieving the lower reporting limits, we note that ecological risk based on selenium exposure will remain a data gap until this issue is resolved.

David A. Seter, P.E.

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